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QUALITY ASSURANCE REVIEW OF THE
RUETGERS-NEASE CHEMICAL COMPANY, INC.
STATE COLLEGE, PA SITE

May 3, 1991

Prepared for:

SMC ENVIRONMENTAL SERVICES
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Introduction

This quality assurance review is based upon a review of all data generated from the 17 aqueous samples and 12 aqueous field blank and trip blank samples that were collected during March 1991 for the Ruetgers-Nease Chemical Company, Inc. State College Site. The samples that have undergone a rigorous quality assurance review are listed on Table 1.

This review has been performed with guidance from the "Functional Guidelines for Evaluating Organics Analyses With Modifications for Use Within Region III" (U.S. EPA, 1988).

The reported analytical results are presented as a summary of the data in Section 2. All of the analytical data were examined to determine contractual compliance relative to the analytical requirements and deliverables specified in the U.S. EPA Contract Laboratory Program (CLP) protocol. Qualifier codes have been placed next to results so that the data user can quickly assess the qualitative and/or quantitative reliability of any result. Details of this quality assurance review are presented in the narrative section of this report. This report was prepared to provide a critical review of the laboratory analyses and reported analytical results. Rigorous quality assurance reviews of laboratory-generated data routinely identify various problems associated with analytical measurements, even from the most experienced and capable laboratories. The nature and extent of problems identified in this critical review should not be interpreted to mean that those results that do not have qualifier codes are less than valid.

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TABLE 1

SAMPLES INCLUDED IN THIS QUALITY ASSURANCE REVIEW

SMC Environmental Services Sample Number	Laboratory Reported SMC Environmental Services Sample Number	Laboratory Sample Number	Date of Sample Collection
115-315MW-30	11530	A1643156R	3/15/91
-	11530MS	A1643156MS	3/15/91
-	11530MSD	A1643156MSD	3/15/91
119-313F.B.	119FB	A1643158	3/15/91
120-315T.B.	120TB	A1643159	3/15/91
121-316F.B.	316FB	A1643163	3/16/91
113-316MW-3	MW3	A1643164	3/16/91
114-316MW-29	MW29	A1643165	3/16/91
117-316MW-7	MW7	A1643166	3/16/91
116-316MW-6	MW6	A1643167	3/16/91
122-316T.B.	122TB	A1643168	3/16/91
89 Field Blank	89FB	A1641918	3/12/91
90 Trip Blank	90TB	A1641919	3/12/91
91-311MW-25	9125	A1641920	3/12/91
92-311MW-31	9231	A1641921	3/12/91
97-312MW-27	9727	A1641922	3/12/91
96-312MW-27MS	9727MS	A1641923MS	3/12/91
98-312MW-27MSD	9727MSD	A1641924DU	3/12/91
99-312MW-32	9932	A1641925	3/12/91
100-312-FB	100FB	A1641926	3/12/91
101-312-TB	101TB	A1641927	3/12/91
102-313MW-9	1029	A1642410	3/13/91
103-313MW-20	10320	A1642411	3/13/91

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TABLE 1 (Cont.)

SMC Environmental Services Sample Number	Laboratory Reported SMC Environmental Services Sample Number	Laboratory Sample Number	Date of Sample Collection
104-313T.B.	104TB	A1642412	3/13/91
105-313MW-47	10547	A1642413	3/13/91
106-313F.B.	106FB	A1642414	3/13/91
107-314MW-1	14MW1	A1642975	3/14/91
108-314MW-21	4MW21	A1642976D	3/14/91
109-314SUMP2	SUMP2	A1642977	3/14/91
110-314F.B.	314FB	A1642978	3/14/91
111-314T.B.	314TB	A1642979	3/14/91
112-314MW-23	4MW23	A1642980D	3/14/91
118-315MW-22	11830	A1643157	3/15/91

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Section 1 Quality Assurance Review

A. Organic Data Evaluation

Seventeen aqueous samples and 12 aqueous field blank and trip blank samples were analyzed for the Target Compound List (TCL) volatiles by the Contract Laboratory Program (CLP) protocols as specified on Table 1. The CLP analyses were performed by Lancaster Laboratories of Lancaster, Pennsylvania.

The findings in this report are based upon a rigorous review of holding times, blank analysis results, surrogate recoveries, matrix spike recoveries, GC/MS tuning, target compound matching quality, calibrations, internal standard areas and the quantitation of positive results.

Overall, the organic data is good. Contractual criteria and reporting requirements were met for this data set, with the exception of the following. It should be emphasized that the following items are contractual in nature and do not necessarily affect data usability. Data usability is addressed separately.

Correctable Deficiencies

1. Most of the SMC Environmental Services Group sample numbers are not reported on the QC summary forms exactly as they appear on the Chain-of-Custodies. The reviewer has opted to refer to the laboratory reported SMC Environmental Services sample numbers in this report.
2. Volatile Tentatively Identified Compounds (TICs) Form I's were not provided for samples 1029-DL, 1320DL, 10547DL, 4MW21DL, SUMP2DL, SUMP2DL2 and 4MW23DL.
3. A Volatile Continuing Calibration Form (Form VII) was not provided for the continuing calibrations performed on instrument OWA01930 on 3/20/91 at 13:33.
4. In the volatile chromatogram of most samples, there is a peak that elutes within the first 3 minutes of the analytical run, which has an apparent peak height greater than 10 percent of the associated internal standard and was not library searched. This peak, although most likely due to an air leak (CO₂) or a solvent front (methanol), should have been library searched.
5. The laboratory reported the results for the matrix spike compounds on the Form I's for the volatile matrix spike/matrix spike duplicate analyses. Per the CLP protocol, only non-matrix spike compounds should be reported on the Form I's.
6. The following discrepancies were observed between the raw GC/MS tuning data for bromofluorobenzene (BFB) and the reported percent abundances on the applicable Form V's. None of the discrepancies impact data usability.

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<u>Tune Compound</u>	<u>Date/Time of Tune</u>	<u>Mass Ion</u>	<u>Reported Abundance</u>	<u>Observed Abundance</u>
BFB	03/15/91 at 17:28	175	5.9	6.0
BFB	03/15/91 at 17:28	177	7.0	6.9
BFB	03/20/91 at 11:08	176	69.9	70.0
BFB	03/20/91 at 11:08	177	5.0	4.9
BFB	03/21/91 at 08:12	176	68.1	68.0
BFB	03/22/91 at 07:56	177	6.5	6.4
BFB	03/25/91 at 10:04	176	79.2	79.1

With regard to data usability, principal areas of concern include blank contamination, duplicate analysis results and calibrations. Based upon a review of the data provided, the following organic data qualifiers are offered.

Organic Data Qualifiers

- Due to the trace-level presence of toluene, 1,1,2,2-tetrachloroethane, methylene chloride and acetone in the laboratory method blanks, field blanks and trip blanks, the reported presence of toluene, 1,1,2,2-tetrachloroethane, methylene chloride and acetone in the following samples is qualitatively questionable and the results have been flagged "B" on the data tables.

<u>Compound</u>	<u>Applicable Samples</u>
toluene	1029, 1029-DL, 14MW1, 4MW21 and 4MW21DL
1,1,2,2-tetrachloroethane	9932, 10320, 10320DL and SUMP2
methylene chloride	9727, 1029, 4MW21 and SUMP2
acetone	9231, 9727 and 9932

- Although the results for methylene chloride in sample 4MW21, for toluene in samples 4MW21 and 4MW21DL, and for 1,1,2,2-tetrachloroethane in samples 10320 and 10320DL appear to be substantial, these results actually represent trace-level instrument levels, similar to those observed in blanks, multiplied by large dilution factors.

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- Although the reported result for 1,1,2,2-tetrachloroethane in sample 10547DL is at a concentration that can be questioned by the blanks, the reviewer has not qualified these results with a "B." The concentration of this compound in the initial analysis of the aforementioned sample was substantial enough that it could not be qualitatively questioned.
- Although there is no direct reason to qualitatively question the presence of acetone in samples MW29, MW7 and 1029, these results should be used with caution. Acetone is a common laboratory contaminant.
- The positive results for the compounds in the following samples should be considered estimated and have been flagged "J" on the data tables. The instrument levels of the compounds in these samples exceeded the calibration range.

<u>Compound</u>	<u>Applicable Samples</u>
acetone	SUMP2 and SUMP2DL
total 1,2-dichloroethene	1029
1,1,2,2-tetrachloroethane	4MW21 and 4MW23
trichloroethene	1029 and 4MW21
toluene	10320, 10547, SUMP2 and 4MW23
total xylenes	SUMP2 and 4MW23

- The positive results for the compounds in the following samples should be considered estimated and have been flagged "J" on the data tables. High percent differences were obtained between the results obtained for the compounds in the initial undiluted analyses and the results obtained for the compounds in the dilution analyses and/or reanalyses of these samples.

<u>Compound</u>	<u>Applicable Samples</u>
acetone	10320
1,1,2,2-tetrachloroethane	4MW21 and 4MW21DL
trichloroethene	1029 and 1029DL
tetrachloroethene	4MW21, 4MW21DL, 4MW23 and 4MW23DL
toluene	10320, 10320DL, 10547, 10547DL, SUMP2, SUMP2DL, SUMP2DL2, 4MW23 and 4MW23DL

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CompoundApplicable Samples

total xylenes

10320, 10320DL, 4MW21, 4MW21DL, 10547,
10547DL, SUMP2, SUMP2DL, SUMP2DL2,
4MW23 and 4MW23DL

- The analysis for 2-butanone in samples 11530, 11830, 119FB, 120TB, 316FB, MW3, MW29, MW7, MW6, 122TB, 89FB, 90TB, 9125, 9231, 9727, 9932, 100FB, 101TB and 4MW23DL is unreliable and the "not-detected" results have been flagged "R" on the data tables. A low average relative response factor (<0.05) for 2-butanone was observed in an associated continuing calibration standard or in an associated initial multi-point calibration standard.
- The positive results for acetone in samples 89FB, 100FB and 101TB and for carbon disulfide in sample SUMP2 should be considered estimated and have been flagged "J" on the data tables. A high percent difference was obtained between the response factor for acetone and carbon disulfide in the associated continuing calibration and the average response factor for acetone and carbon disulfide in the associated initial calibration standard.
- Tentatively Identified Compounds (TICs) for the VOA analyses performed have been evaluated and are presented on the data tables. The majority of the TICs appear to be unknowns, alkylbenzenes, alkanes and blank contaminants.
- Per CLP protocols, all results reported below the quantitation limits should be considered estimated and have been flagged "J" on the data tables.

A complete support documentation of this quality assurance review is presented in Section 3 of this report.

AR302604



B. Conclusions

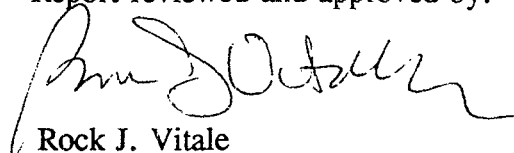
This quality assurance review has identified several aspects of the data that required qualification. Overall, the data results are acceptable for use and represent good laboratory performance. However, a small portion of the data has been qualified due to sample matrix problems and laboratory quality control standard results. To confidently use any of the data in the sample set, the data users should understand the limitations and qualifications presented in this report.

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SECTION 2

ANALYTICAL RESULTS

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VOLATILE ORGANIC ANALYSIS - ANALYTICAL RESULTS

- page 1

SAC Environmental Service Sample Number	11530	11830	11978	12078	31678	M43	M429	M47	M46	12278	8978	9078	9125	9231	9727
Labatory Sample Number	A1643158R	A1643157	A1643158	A1643159	A1643163	A1643164	A1643165	A1643166	A1643167	A1643168	A1641918	A1641919	A1641920	A1641921	A1641922
Remarks			Field Blank	Trip Blank	Field Blank					Trip Blank	Field Blank	Trip Blank			
Units	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
VOLATILE COMPOUNDS	Quantitation														
Limit															
Chloroethane	10														
Bromoethane	10														
Vinyl Chloride	10	2 J						57	4 J						
Chloroethane	10														
Methylene Chloride	5		1 J								2 J	1 J			5 B
Acetone	10		11				23	25	84		13 J			31 B	12 B
Carbon Disulfide	5														
1,1-Dichloroethane	5							3 J							
1,1,1-Trichloroethane	5	3 J													
Total 1,2-Dichloroethane	5	6300						78	10						
Chloroform	5														
1,2-Dichloroethane	5							6							
2-Butanone	10	R	R	R	R	R	R	R	R	R	R	R	R	R	R
1,1,1-Trichloroethane	5														
Carbon Tetrachloride	5														
Vinyl Acetate	10														
Bromodichloroethane	5														
1,1,1,2-Tetrachloroethane	5	28,000					28	2 J	11						
1,2-Dichloropropane	5														
Trans-1,3-Dichloropropene	5														
Trichloroethane	5	3500					8	37	13					1 J	
1,1,1,2-Tetrachloroethane	5														
1,1,2-Trichloroethane	5														
Benzene	5						4 J	21	1 J						2 J

AR302607

SM Environmental Service Sample Number	11530	11830	11978	12078	31678	M43	M49	M47	M46	12278	8978	9078	9175	9231	9727
Laboratory Sample Number	A1643158	A1643157	A1643158	A1643159	A1643163	A1643164	A1643165	A1643166	A1643167	A1643168	A1641918	A1641919	A1641920	A1641921	A1641922
			Field Blank	Trip Blank	Field Blank					Trip Blank	Field Blank	Trip Blank			
Notes	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Volatile Compounds	Quantitation Limit (ug)														
cis-1,3-dichloropropene	5														
Bromofore	5														
2-hexanone	10														
4-Methyl-2-pentanone	10														
Tetrachloroethene	5							2.3	4.3						
Toluene	5	460.3					110	15	27						
Chlorobenzene	5														
Ethylbenzene	5						11	58	3.3						
St	5														
Total xylenes	5	660.3					65	21	12						
Quantitation Limit Multiplier	1.0	200	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Date of Sample Collection	3/15/91	3/15/91	3/15/91	3/15/91	3/16/91	3/16/91	3/16/91	3/16/91	3/16/91	3/16/91	3/12/91	3/12/91	3/12/91	3/12/91	3/12/91
Date Sample Received by Laboratory	3/16/91	3/16/91	3/16/91	3/16/91	3/16/91	3/16/91	3/16/91	3/16/91	3/16/91	3/16/91	3/13/91	3/13/91	3/13/91	3/13/91	3/13/91
Date of Sample Analysis	3/23/91	3/23/91	3/23/91	3/25/91	3/25/91	3/25/91	3/25/91	3/25/91	3/25/91	3/25/91	3/19/91	3/19/91	3/19/91	3/19/91	3/19/91
Instrument used for Analysis	MS-QM401330	MS-QM401330	MS-QM401330	MS-QM401330	MS-QM401330	MS-QM401330	MS-QM401330	MS-QM401330	MS-QM401330	MS-QM401330	MS-QM401330	MS-QM401330	MS-QM401330	MS-QM401330	MS-QM401330

NOTES:

- Compound was not detected.
- 8 This result is qualitatively suspect since this compound was detected in field and/or laboratory blanks at similar levels.
- 9 Unreliable result - Compound may or may not be present in this sample.
- 3 Quantitation is approximate due to limitations identified during the quality assurance review (data validation).
- 10 This compound was not detected, but the quantitation limit is probably higher due to a low bias identified during the quality assurance review.

AR302608

ICP - TENTATIVELY IDENTIFIED COMPOUNDS																ESTIMATED CONCENTRATIONS																- page 3	
SW Environmental Service Sample Number	11530	11830	11918	12018	31618	MJ3	MJ29	MJ7	MJ5	12218	8918	9018	9125	9231	9127																		
Laboratory Sample Number	A1643156R	A1643157	A1643158	A1643159	A1643163	A1643164	A1643165	A1643166	A1643167	A1643168	A1641918	A1641919	A1641920	A1641921	A1641922																		
Remarks			Field Blank	Trip Blank	Field Blank					Trip Blank	Field Blank	Trip Blank																					
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L																	
COMPOUNDS	ORIGINAL (Red)																																
VOLATILE COMPOUNDS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-																		
Laboratory artifact			5.0 R							16 R		23 R		5.3 R																			

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NOTES:

- Compound was not detected.
- 8 This result is qualitatively suspect since this compound was detected in field and/or laboratory blanks at similar levels.
- R Unreliable result - Compound may or may not be present in this sample.
- J Quantitation is approximate due to limitations identified during the quality assurance review (data validation).
- W This compound was not detected, but the quantitation limit is probably higher due to a low bias identified during the quality assurance review.

AR302609

JK Environmental Service Sample Number Laboratory Sample Number	9932 A1641925	100FB A1641926	101TB A1641927	1029 A1642410	10320 A1642411D	104TB A1642412	10547 A1642413D	106FB A1642414	14M41 A1642975	4M421 A1642976D	SWW2 A1642977
Notes		Field Blank	Trip Blank			Trip Blank		Field Blank			
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
VOIATILE COMPOUNDS				Analyzed Twice	Analyzed Twice		Analyzed Twice			Analyzed Twice	Analyzed Three Times
Quantitation Limit (ng)											
Chloroethane	10										
Bromoethane	10										
Vinyl Chloride	10			8 J/J 3	840 J/-		510 J/-		12	480 J/-	
Chloroethane	10										
Methylene Chloride	5		1 J	5 B/-				2 J		1000 B/-	10 B/-/-
Acetone	10	15 B	14 J	17/-	4300 J/-						17,000 J/15,000 J/13,000
Carbon Disulfide	5										2 J/-/-
1,1-Dichloroethane	5			1 J/-					4 J		
1-chloroethane	5										
Total 1,2-Dichloroethane	5	3 J		240 J/220	5100/4300		3300/3200		8	19,000/19,000	3 J/-/-
Chloroform	5										
1,2-Dichloroethane	5										
2-Butanone	10	R	R								8J/-/-
1,1,1-Trichloroethane	5								73		
Carbon Tetrachloride	5										
Vinyl Acetate	10										
Bromodichloroethane	5										
1,1,2,2-Tetrachloroethane	5	5 B		87/90	1000 B/1200 B		1200/1000			250,000 J/200,000 J	7 B/-/-
1,2-Dichloropropane	5			2 J/-							
trans-1,3-Dichloropropene	5										
Trichloroethane	5	26		1720 J/100 J	310 J/-		200 J/-		4 J	82,000 J/70,000	6/-/-
D. chloroethane	5										
1,1,2-Trichloroethane	5			2 J/-					3 J		
Benzene	5				270 J/-		210 J/-		3 J		2 J/-/-

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WILE ORGANIC ANALYSIS - ANALYTICAL RESULTS

Environmental Service Sample Number Story Sample Number	9932	100F/B	101B	1029	10320	10478	10647	10678	10M11	4M21	SUM2
	A1641925	A1641926	A1641927	A1642410	A1642411B	A1642412	A1642413B	A1642414	A1642975	A1642976D	A1642977
Matrix		Field Blank	Trip Blank			Trip Blank		Field Blank			
ITS	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
LATILE COMPONENTS	Quantitation Limit (ng)			Analyzed Twice	Analyzed Twice		Analyzed Twice			Analyzed Twice	Analyzed Three Times
s-1,3-dichloropropene	5										
comform	5										
Hexanone	10										
Methyl-2-pentanone	10										
tetrachloroethane	5	17		55/48						3400 J/6400 J	8/-
dioxane	5			5 B/12 B	44,000 J/25,000 J			33,000 J/22,000 J	1 J	5 B	1000 B/10,000 B
chlorobenzene	5			2 J/3 J	200 J/250 J		210 J/-				5/-
cyclohexane	5			9/9 J	2600/2300		2000/1500			250 J/-	83/58 J/-
total xylenes	5										
quantitation limit multiplier	1.0	1.0	1.0	1.0/2.5	200/250	1.0	100/200	1.0	1.0	200/2000	1.0/25/100
Date of Sample Collection	3/12/91	3/12/91	3/12/91	3/13/91	3/13/91	3/13/91	3/13/91	3/13/91	3/14/91	3/14/91	3/14/91
Date Sample Received by Laboratory	3/13/91	3/13/91	3/13/91	3/14/91	3/14/91	3/14/91	3/14/91	3/14/91	3/15/91	3/15/91	3/15/91
Date of Sample Analysis	3/15/91	3/15/91	3/15/91	3/20 & 3/21	3/20 & 3/21	3/20/91	3/21 & 3/21	3/21/91	3/21/91	3/22 & 3/22	3/22 & 3/22 & 3/22
Instrument Used for Analysis	MS-QMA01930 MS-QMA01930	MS-QMA01930	MS-QMA01930	MS-QMA01930	MS-QMA01930	MS-QMA01930	MS-QMA01930	MS-QMA01930 MS-QMA01930	MS-QMA01930	MS-QMA01930	MS-QMA01930

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NOTES:

8. This result is qualitatively suspect since this compound was detected in field and/or laboratory blanks at similar levels.
9. Unreliable result - Compound may or may not be present in this sample.
3. Quantitation is approximate due to limitations identified during the quality assurance review (data validation).
10. This compound was not detected, but the quantitation limit is probably higher due to a low bias identified during the quality assurance review.

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MULTI ORGANIC ANALYSIS - ANALYTICAL RESULTS				-page 7
AC Environmental Service Sample Number	314FB	314FB	4M23	
Story Sample Number	A1642918	A1642919	A1642900	
Notes	Field	Trip		
	Blank	Blank		
nits	ug/l	ug/l	ug/l	
OLATILE COMPOUNDS	Quantitation		Analyzed	
	Limit (ug)		Twice	
chloroethane	10			
trichloroethane	10			
vinyl chloride	10			
chloroethane	10			
tetethylene chloride	5	2 J		
acetone	10	10 J		
Carbon Disulfide	5			
1,1-dichloroethene	5			
1,2-dichloroethane	5			
Total 1,2-dichloroethene	5			590/6200
chloroform	5			
1,2-dichloroethane	5			
2-butanone	10			-R
1,1,1-trichloroethane	5			
Carbon Tetrachloride	5			
Vinyl Acetate	10			
Bromodichloromethane	5			
1,1,2,2-tetrachloroethane	5			62,000 J/52,000
1,2-dichloropropane	5			
trans-1,3-dichloropropene	5			
Trichloroethene	5			35,000/31,000
Di-chloromethane	5			
1,1,2-Trichloroethane	5			
Benzene	5			19,000/18,000

NOTES:

- Compound was not detected.
- B This result is qualitatively suspect since this compound was detected in field and/or laboratory blanks at similar levels.
- R Unreliable result - Compound may or may not be present in this sample.
- J Quantitation is approximate due to limitations identified during the quality assurance review (data validation).
- DL This compound was not detected, but the quantitation limit is probably higher due to a low bias identified during the quality assurance review.

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VOLATILE ORGANIC ANALYSIS - ANALYTICAL RESULTS				-page 8
SAC Environmental Service Sample Number	314TB	314TB	44M23	
Laboratory Sample Number	A1642978	A1642979	A16429800	
Remarks	Field Blank	Trip Blank		
Units	ug/l	ug/l	ug/l	
VOLATILE COMPOUNDS				
	Quantitation Limit (ug)		analyzed twice	
cis-1,3-dichloropropene	5			
Bromoforn	5			
2-hexanone	10			
4-methyl-2-pentanone	10			
tetrachloroethene	5		3200 J/4400 J	
Toluene	5		250,000 J/190,000 J	
chlorobenzene	5		300 J/-	
Ethylbenzene	5		15,000/16,000	
St. "	5			
Total xylenes	5		130,000 J/92,000 J	
Quantitation Limit Multiplier	1.0	1.0	200/1000	
Date of Sample Collection	3/14/91	3/14/91	3/14/91	
Date Sample Received by Laboratory	3/15/91	3/15/91	3/15/91	
Date of Sample Analysis	3/22/91	3/21/91	3/22 & 3/23	
Instrument Used for Analysis	MS-QM01330 MS-QM01330	MS-QM01330	MS-QM01330	

NOTES:

- Compound was not detected.

B This result is qualitatively suspect since this compound was detected in field and/or laboratory blanks at similar levels.

A Unreliable result - Compound may or may not be present in this sample.

J Quantitation is approximate due to limitations identified during the quality assurance review (data validation).

UL This compound was not detected, but the quantitation limit is probably higher due to a low bias identified during the quality assurance review.

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CIP - TENTATIVELY IDENTIFIED COMPOUNDS - ESTIMATED CONCENTRATIONS		-page 9		
SAC Environmental Service Sample Number	314FB	314TB	4M23	
Laboratory Sample Number	A1642978	A1642979	A16429800	
Remarks	Field Blank	Trip Blank		
Units	ug/l	ug/l	ug/l	
COMPOUNDS			Analyzed Twice	
VOLATILE COMPOUNDS				
(1-Methyl-ethyl)benzene Isomer			1600 +/-	

ORIGINAL (Red)

- NOTES:
- Compound was not detected.
 - B This result is qualitatively suspect since this compound was detected in field and/or laboratory blanks at similar levels.
 - R Unreliable result - Compound may or may not be present in this sample.
 - J Quantitation is approximate due to limitations identified during the quality assurance review (data validation).
 - U This compound was not detected, but the quantitation limit is probably higher due to a low bias identified during the quality assurance review.

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